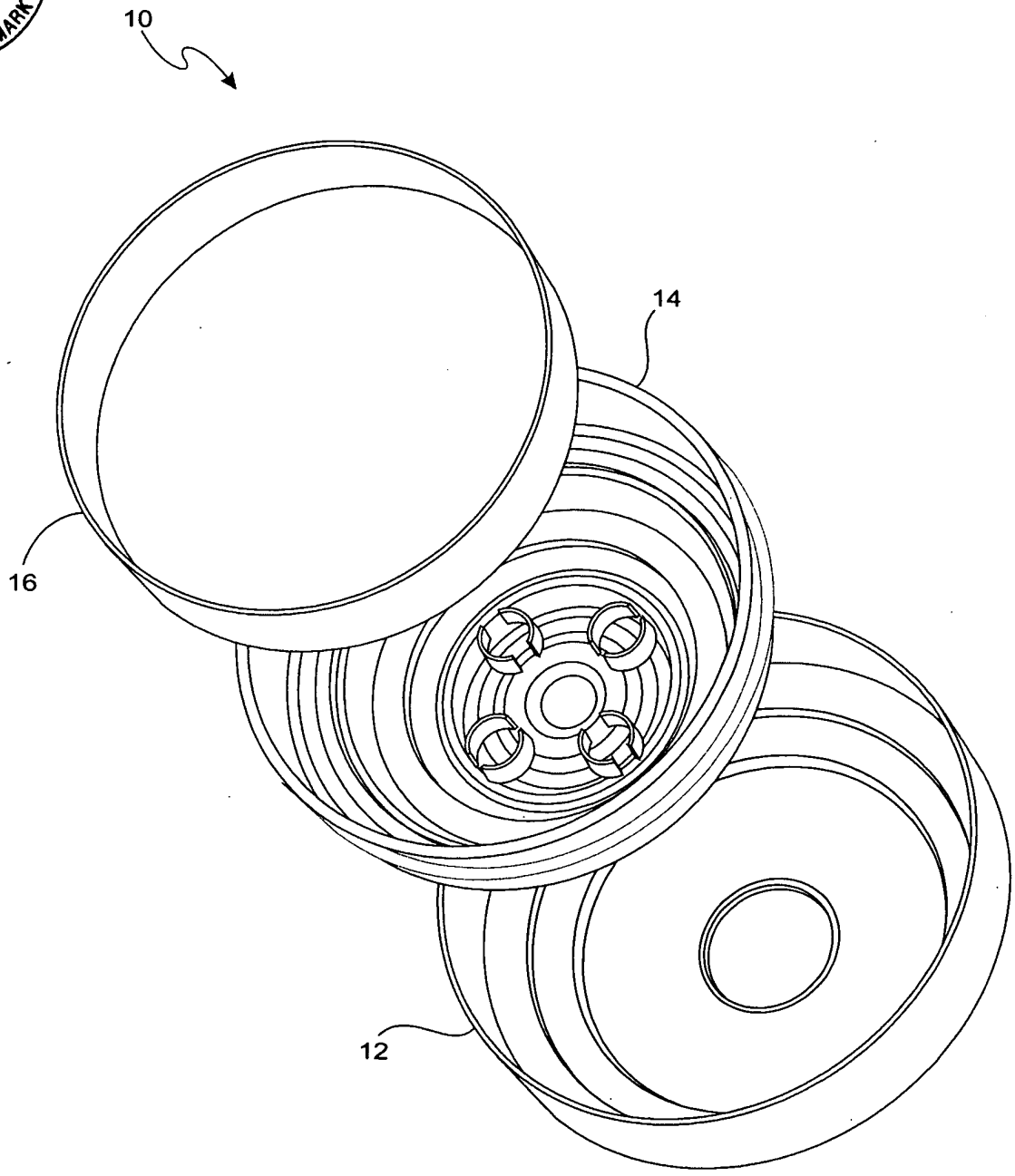

FIG. 1

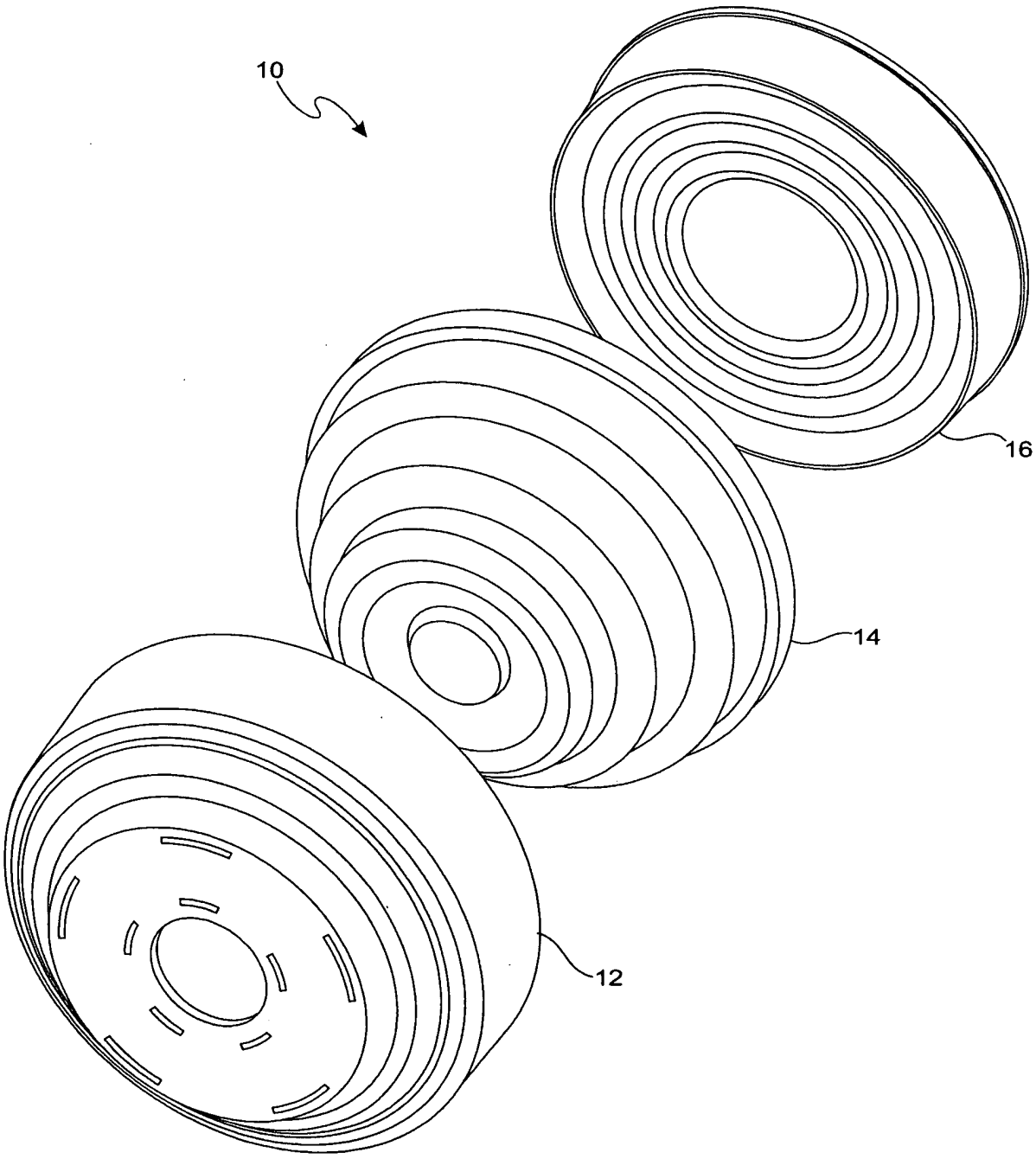

FIG. 2

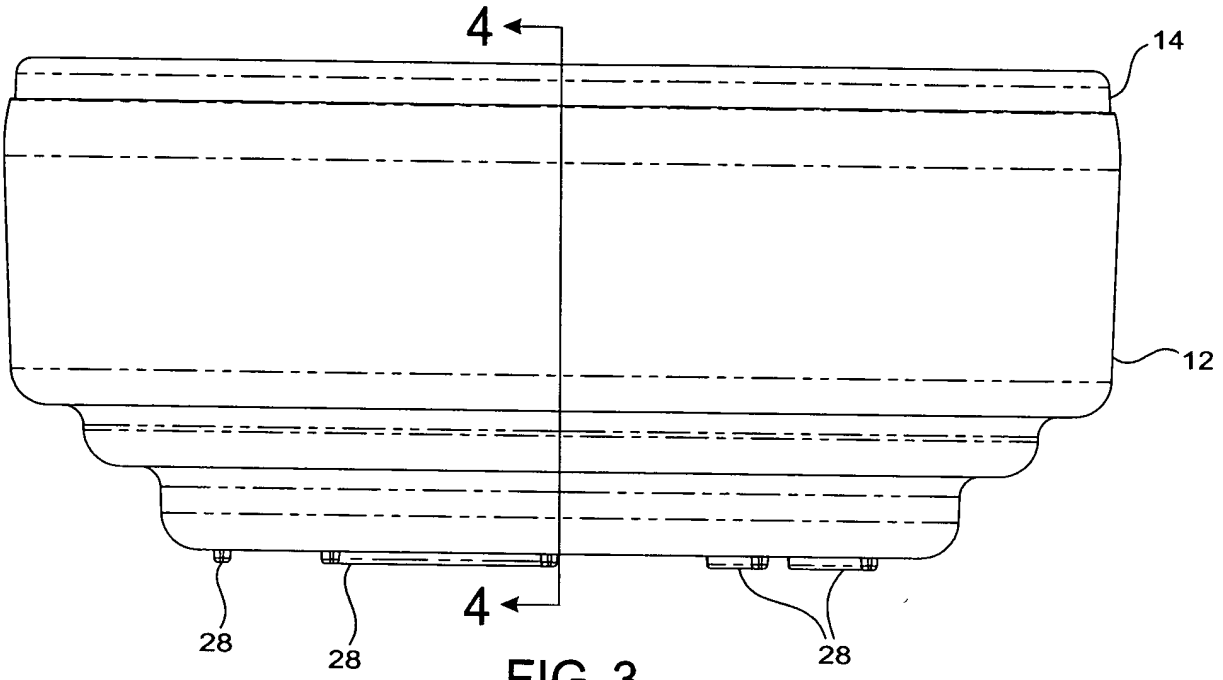
4
14
12
28
28
28
4

FIG. 3

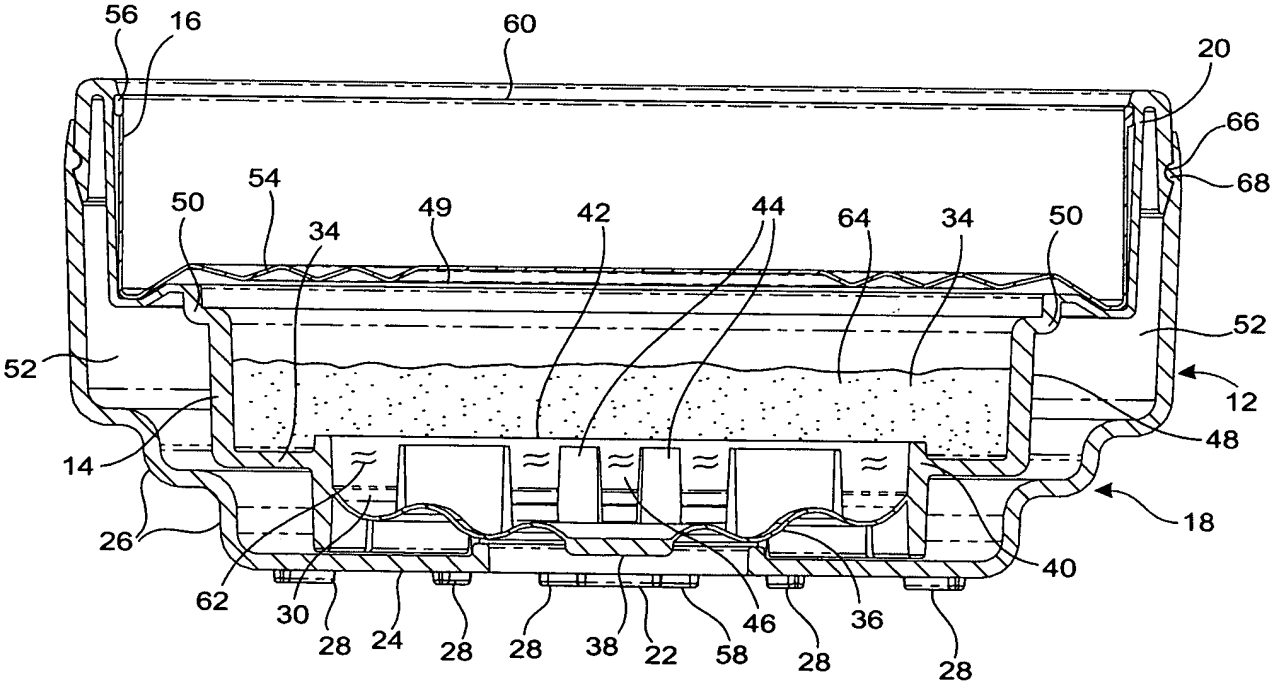
56
16
60
20
66
68
54
50
34
49
42
44
64
34
50
52
52
12
48
14
18
26
40
62
30
28
24
28
28
38
22
58
46
28
36
28

FIG. 4

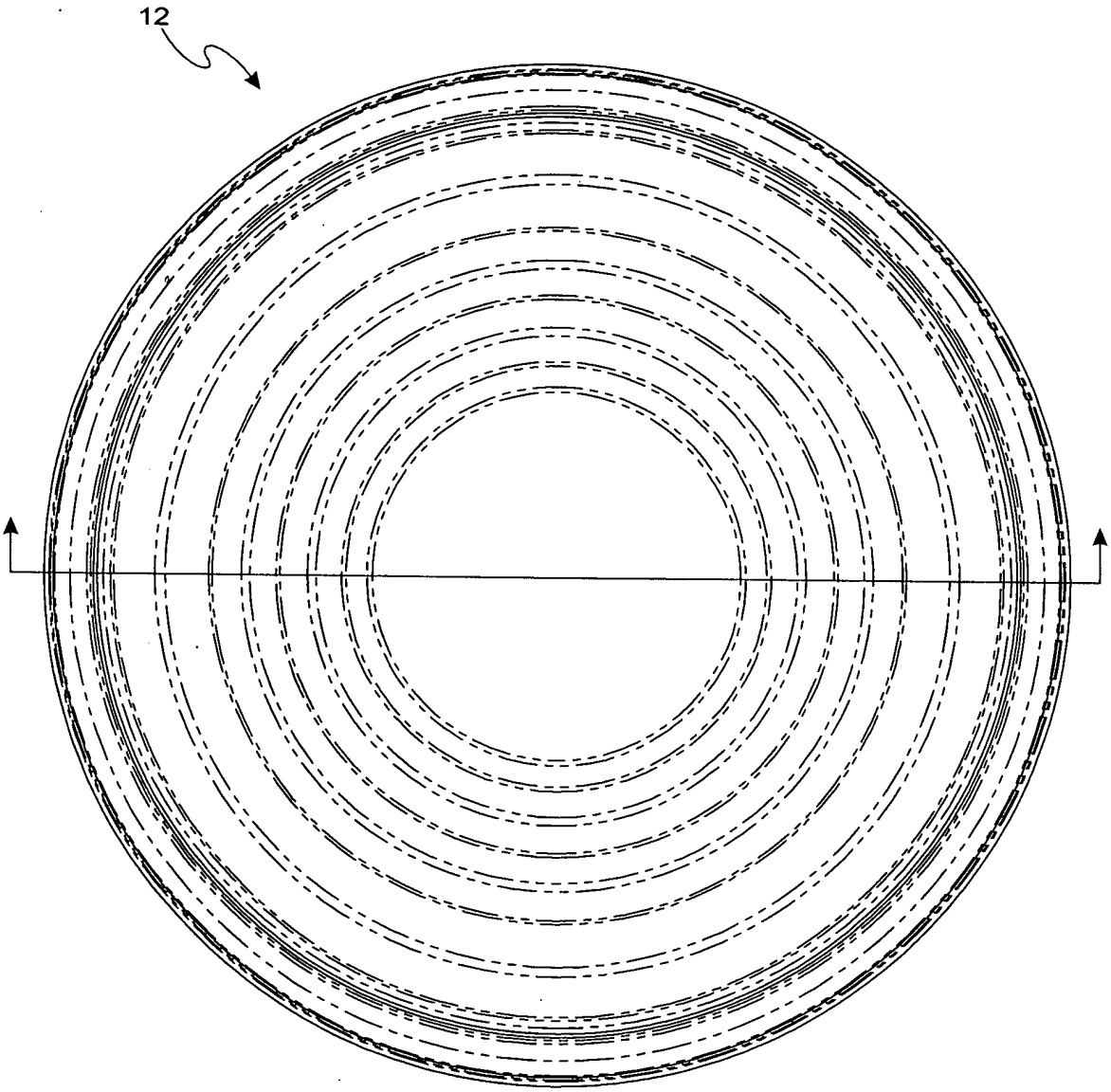

FIG. 5

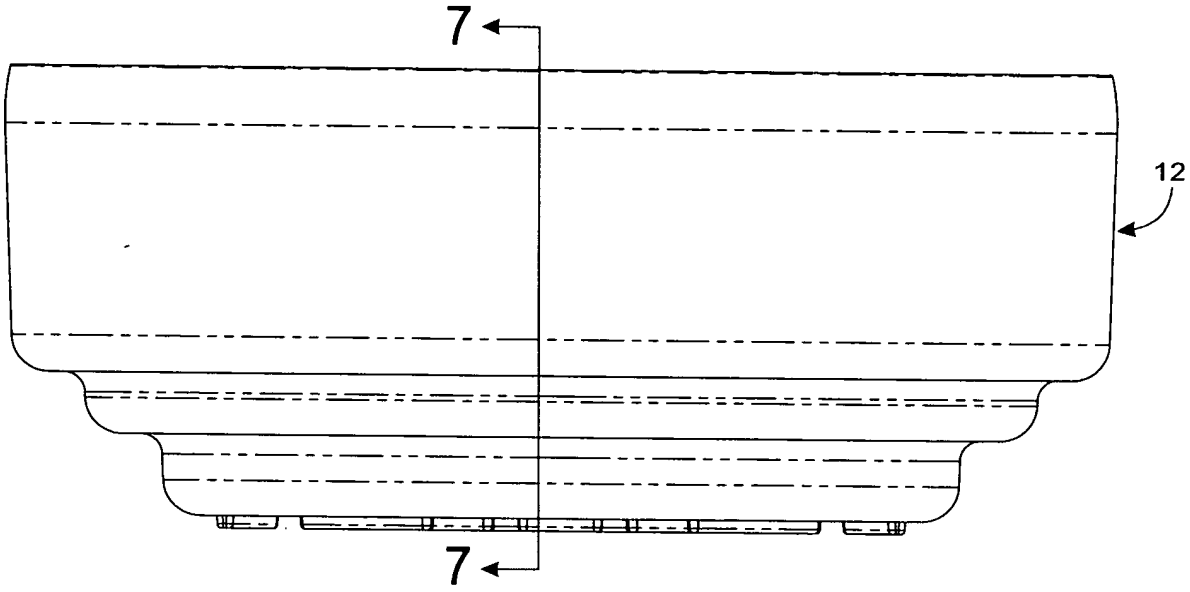

FIG. 6

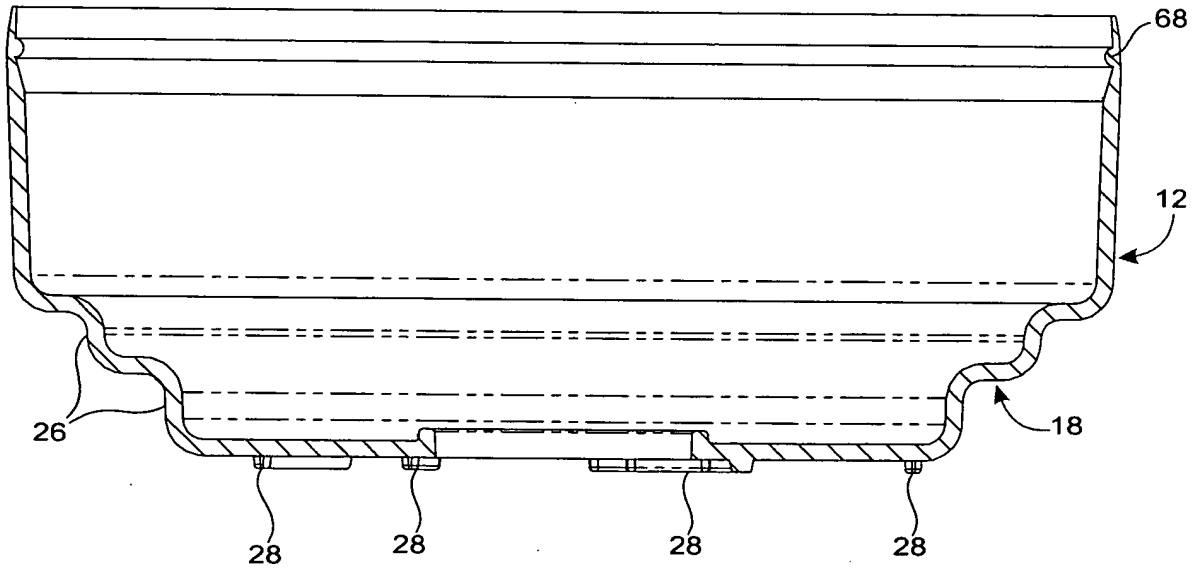

FIG. 7

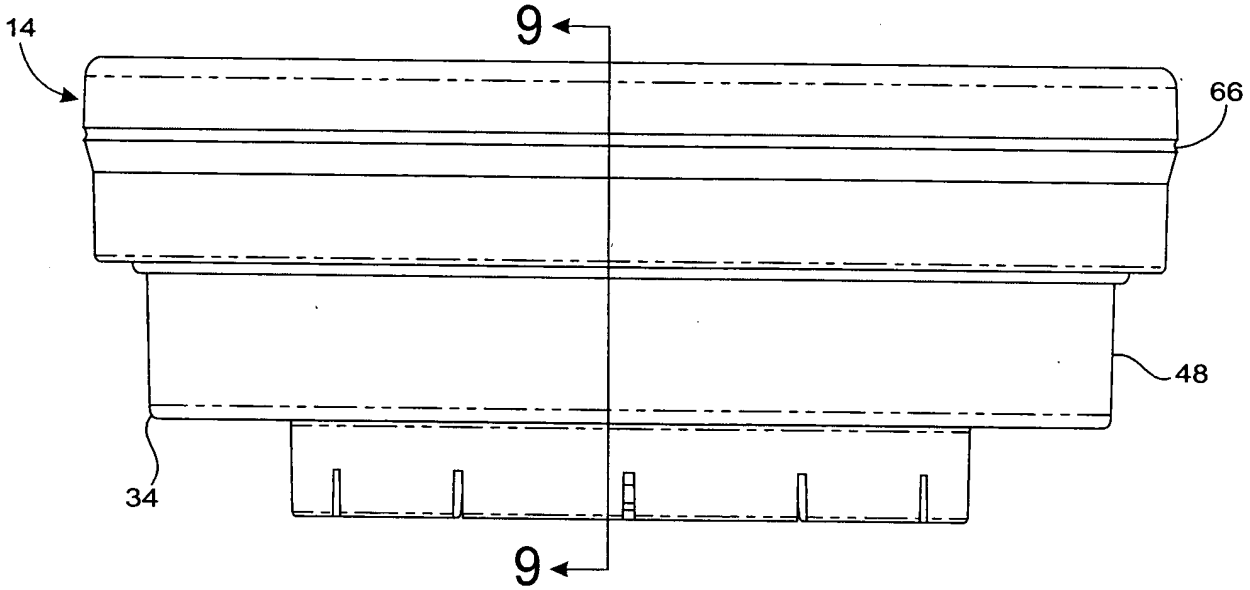

FIG. 8

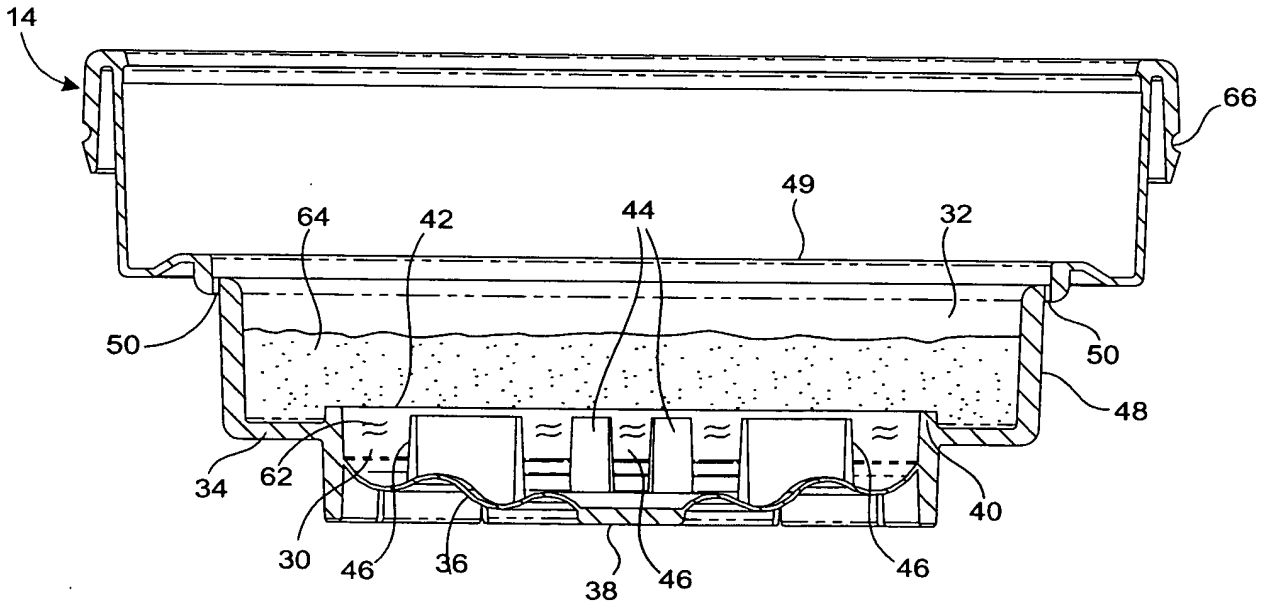

FIG. 9

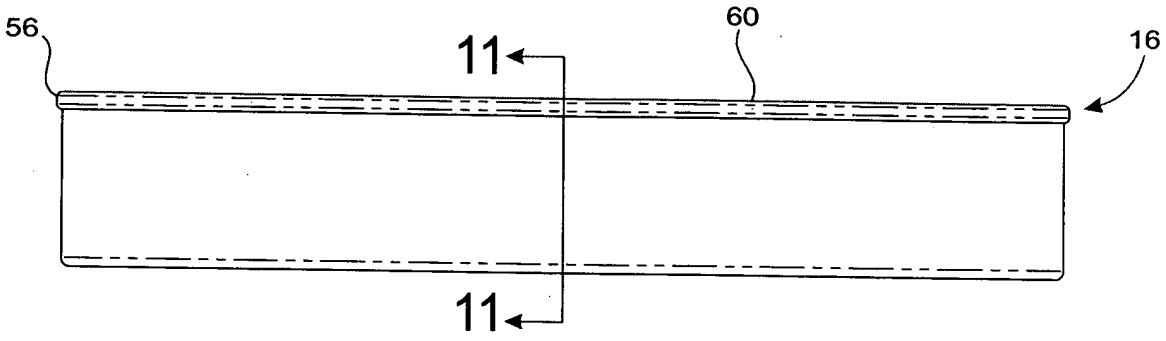

FIG. 10

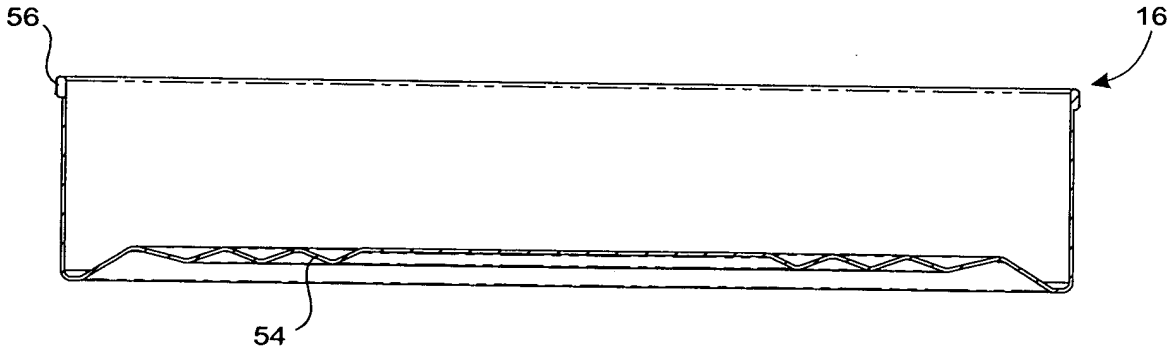

FIG. 11

FIG. 12

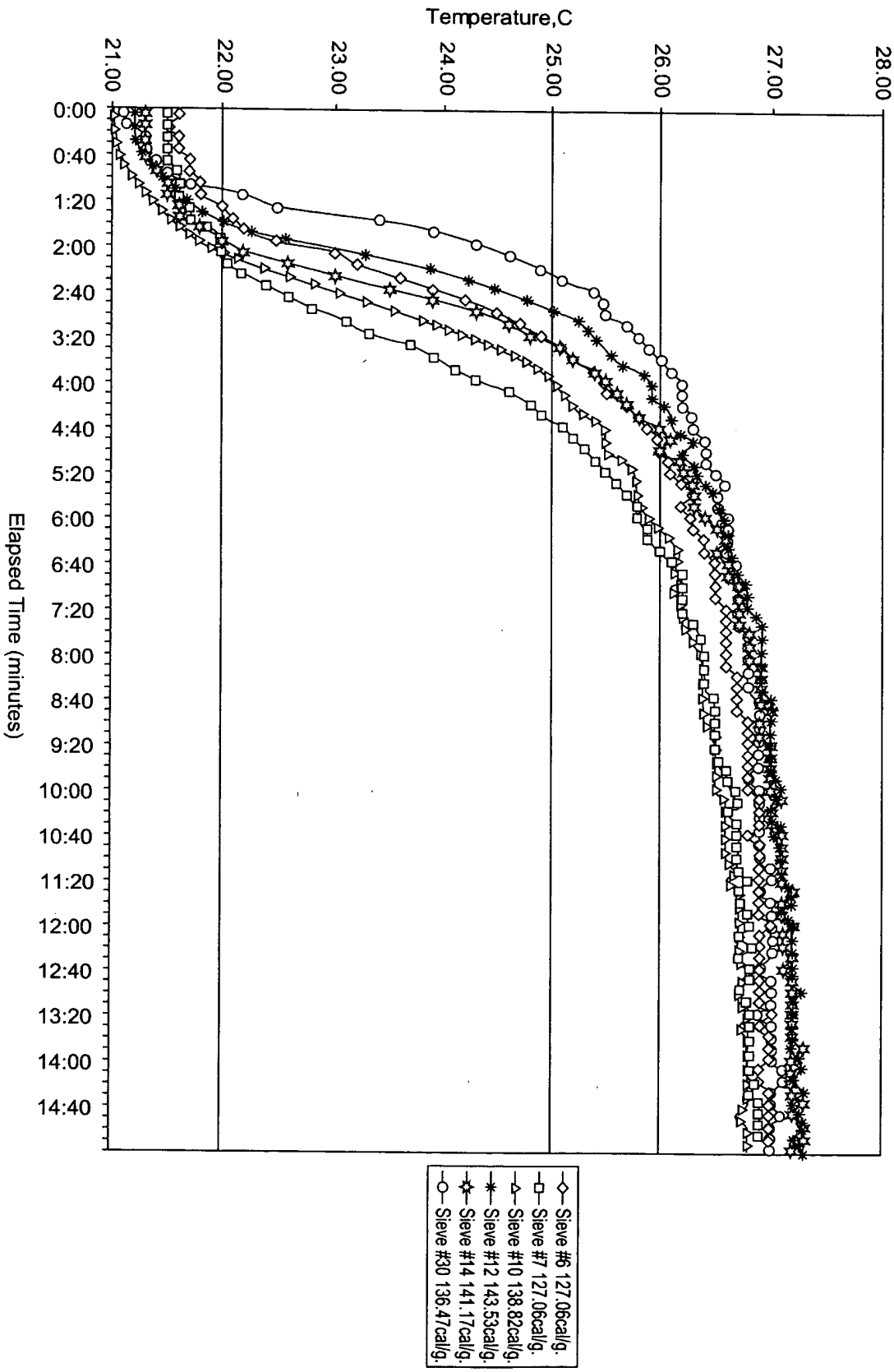
Calories Generated from Various Screen Sizes
Temperature,C
21.00
22.00
23.00
24.00
25.00
26.00
27.00
28.00
Elapsed Time (minutes)
0:00
0:40
1:20
2:00
2:40
3:20
4:00
4:40
5:20
6:00
6:40
7:20
8:00
8:40
9:20
10:00
10:40
11:20
12:00
12:40
13:20
14:00
14:40
Sieve #6 127.06cal/g.
Sieve #7 127.06cal/g.
Sieve #10 138.82cal/g.
Sieve #12 143.53cal/g.
Sieve #14 141.17cal/g.
Sieve #30 136.47cal/g.

FIG. 13

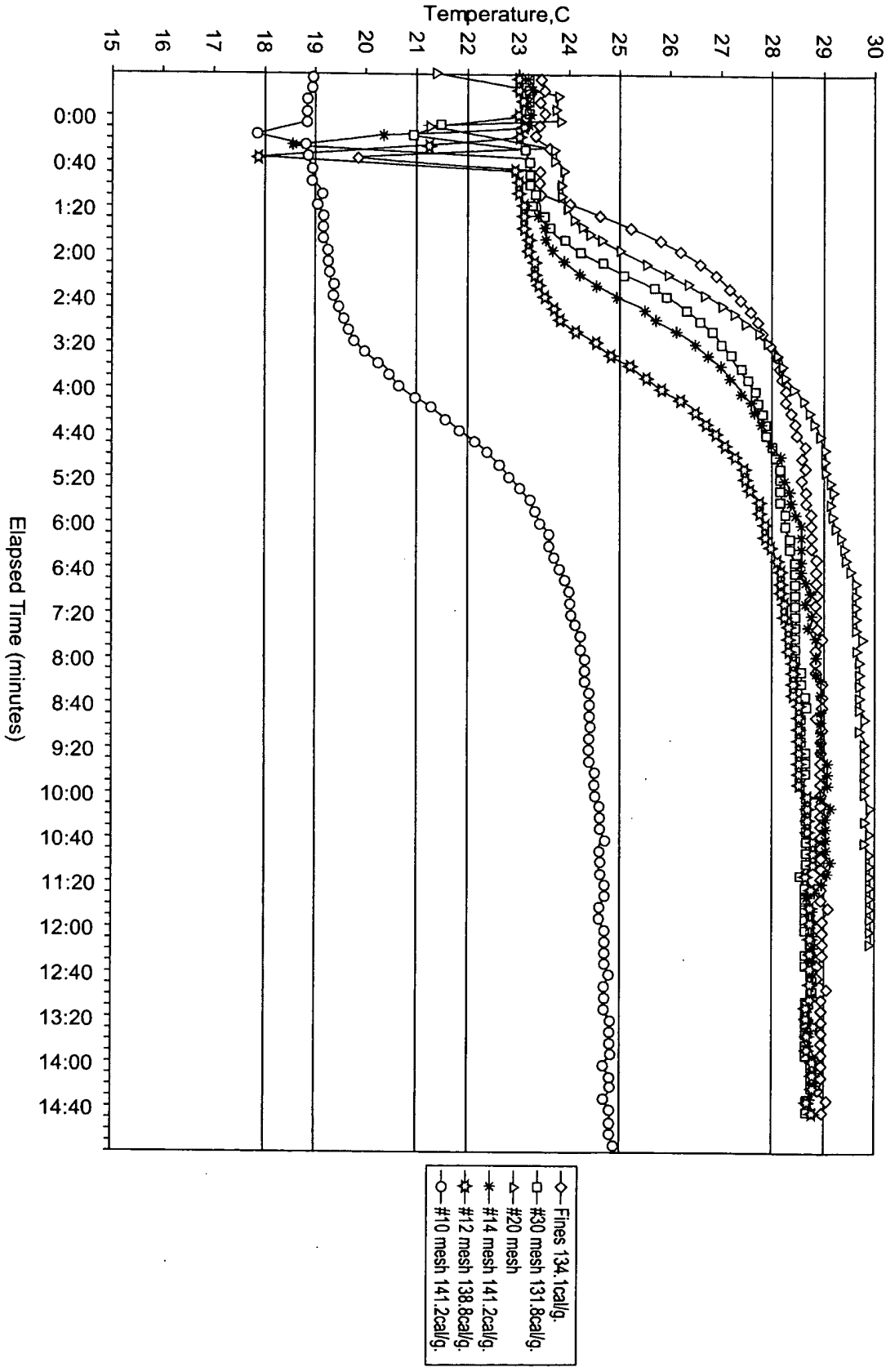
Calories Generated Per Particulate Size Sheet 1
Temperature,C
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
Elapsed Time (minutes)
0:00
0:40
1:20
2:00
2:40
3:20
4:00
4:40
5:20
6:00
6:40
7:20
8:00
8:40
9:20
10:00
10:40
11:20
12:00
12:40
13:20
14:00
14:40
Fines 134.1cal/g.
#30 mesh 131.8cal/g.
#20 mesh
#14 mesh 141.2cal/g.
#12 mesh 138.8cal/g.
#10 mesh 141.2cal/g.

FIG. 14

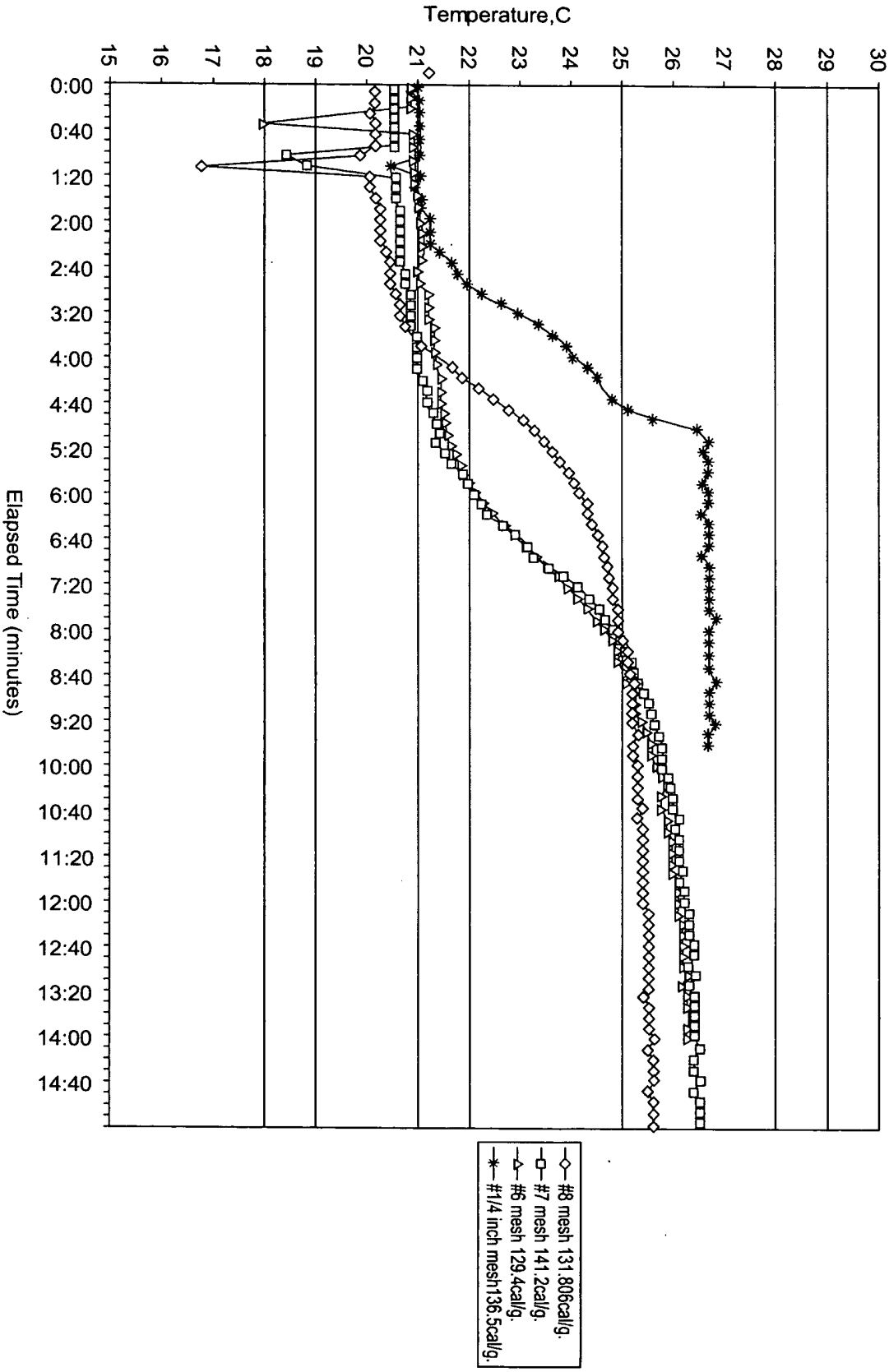
Calories Generated Per Particulate Size Sheet 2
Temperature,C
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
Elapsed Time (minutes)
0:00
0:40
1:20
2:00
2:40
3:20
4:00
4:40
5:20
6:00
6:40
7:20
8:00
8:40
9:20
10:00
10:40
11:20
12:00
12:40
13:20
14:00
14:40
#8 mesh 131.806cal/g.
#7 mesh 141.2cal/g.
#6 mesh 129.4cal/g.
#1/4 inch mesh136.5cal/g.

FIG. 15

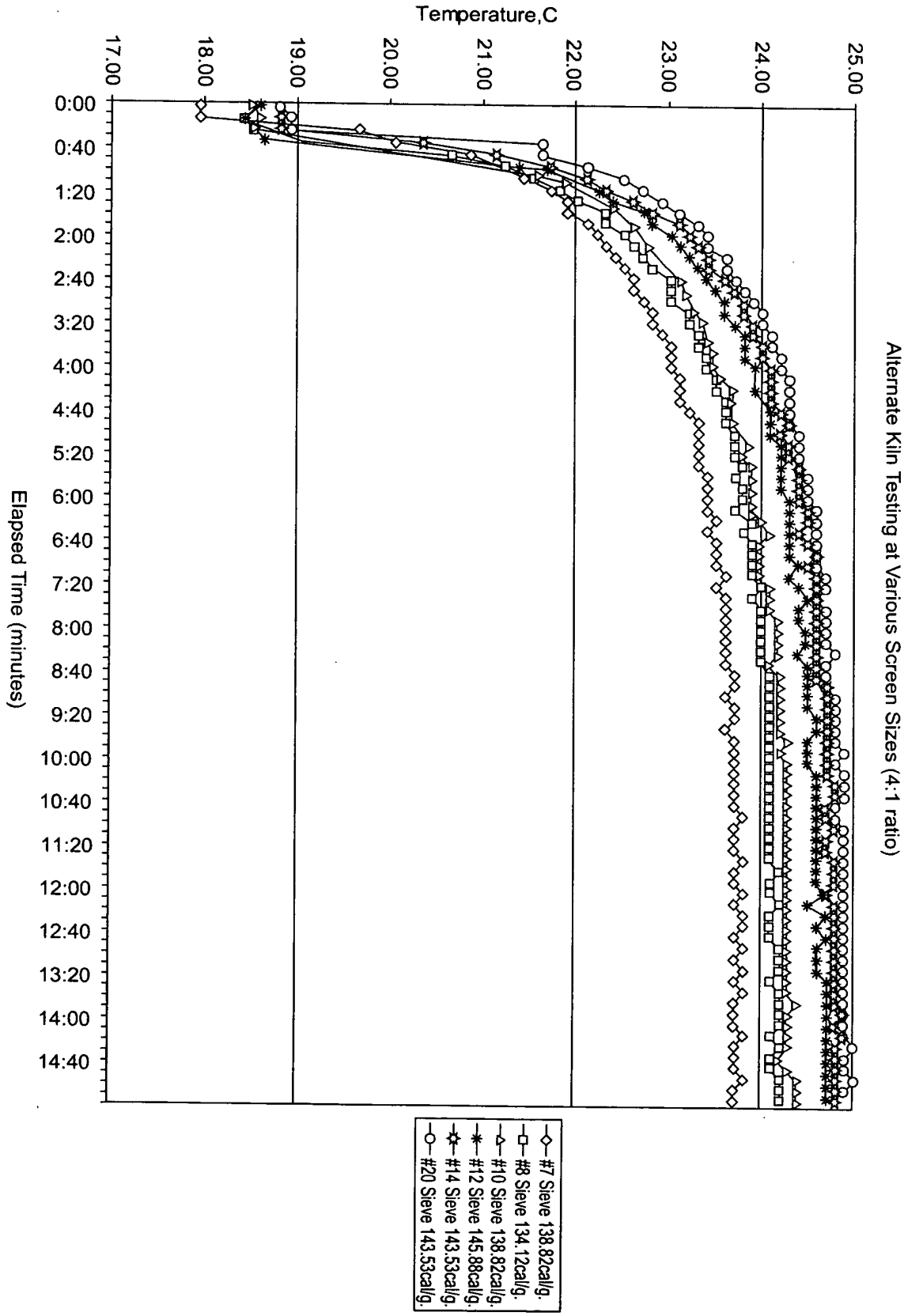
Alternate Kiln Testing at Various Screen Sizes (4:1 ratio)
Temperature,C
17.00
18.00
19.00
20.00
21.00
22.00
23.00
24.00
25.00
Elapsed Time (minutes)
0:00
0:40
1:20
2:00
2:40
3:20
4:00
4:40
5:20
6:00
6:40
7:20
8:00
8:40
9:20
10:00
10:40
11:20
12:00
12:40
13:20
14:00
14:40
#7 Sieve 138.82cal/g.
#8 Sieve 134.12cal/g.
#10 Sieve 138.82cal/g.
#12 Sieve 145.88cal/g.
#14 Sieve 143.53cal/g.
#20 Sieve 143.53cal/g.

FIG. 16

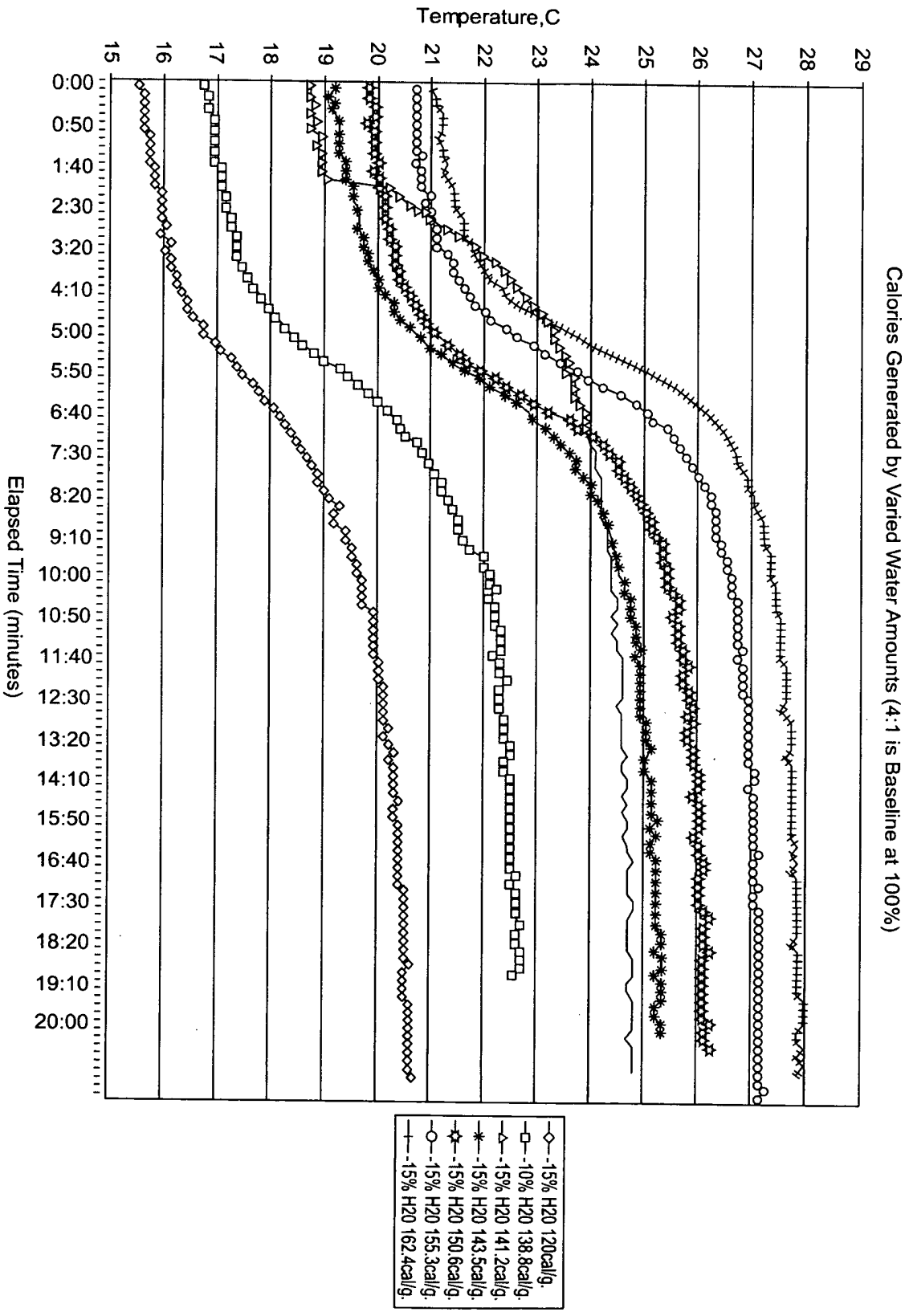
Calories Generated by Varied Water Amounts (4:1 is Baseline at 100%)
Temperature,C
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
Elapsed Time (minutes)
0:00
0:50
1:40
2:30
3:20
4:10
5:00
5:50
6:40
7:30
8:20
9:10
10:00
10:50
11:40
12:30
13:20
14:10
15:50
16:40
17:30
18:20
19:10
20:00
-15% H20 120cal/g.
-10% H20 138.8cal/g.
-15% H20 141.2cal/g.
-15% H20 143.5cal/g.
-15% H20 150.6cal/g.
-15% H20 155.3cal/g.
-15% H20 162.4cal/g.

FIG. 17

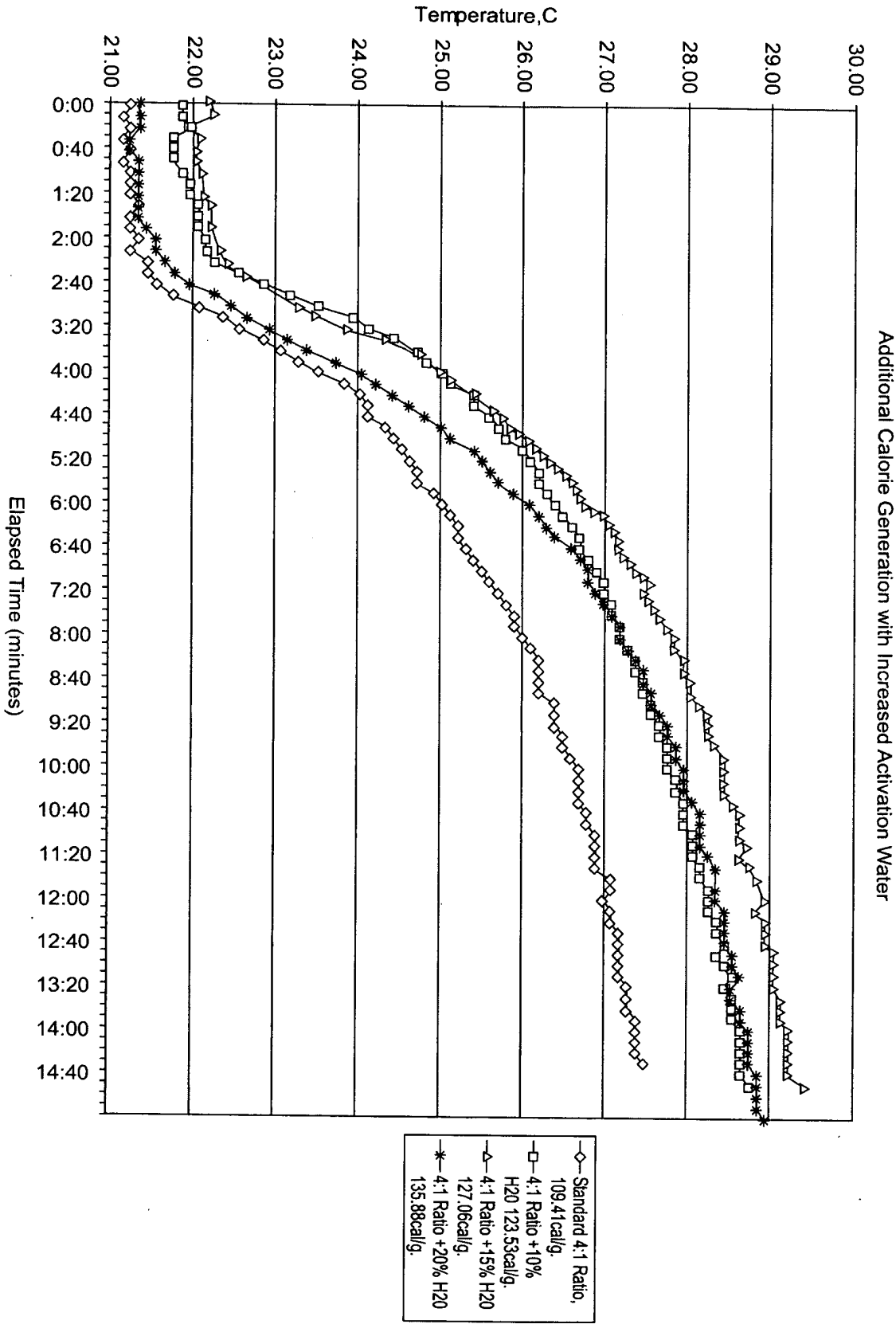
Additional Calorie Generation with Increased Activation Water
Temperature,C
21.00
22.00
23.00
24.00
25.00
26.00
27.00
28.00
29.00
30.00
Elapsed Time (minutes)
0:00
0:40
1:20
2:00
2:40
3:20
4:00
4:40
5:20
6:00
6:40
7:20
8:00
8:40
9:20
10:00
10:40
11:20
12:00
12:40
13:20
14:00
14:40
Standard 4:1 Ratio, 109.41cal/g.
4:1 Ratio +10% H20 123.53cal/g.
4:1 Ratio +15% H20 127.06cal/g.
4:1 Ratio +20% H20 135.88cal/g.

FIG. 18

Mineral components	Concentration (mg/L)
Mineral components	83.0
Chloride	11.7
Fluoride	ND
Nitrate	ND
Silica	28.0
Sulfate	3.4
Calcium	16.6
Magnesium	3.3
Potassium	1.3
Sodium	11.7
Total Dissolved Solids	130
Hardness	55.0
Heavy Metals	ND
Arsenic	ND
Trihalomethanes	ND
pH	7.04
Conductivity (S	250

(ND = Not Detectable)

FIG. 19

Property

Additive	Molecular Formula	Molecular weight	Physical State	Appearance	Odor	pH	Vapor Density
Sodium Benzoate	C7H5C2Na	144.02	Crystalline powder	white	Characteristic odor	~8	4.97
Fructose	C6(H2O)6	180.16g	white crystals	white	odorless		
Sucrose	C12H22O11	342.3g	Momoclinic sphenoidal crystals		Characteristic caramel	solutions are neutral to litmus	
Citric Acid	C6H8O7	192.12g	white granules	white	odorless	2.2 (0.1N sol)	

Additive	Evaporation rate	MP	Solubility	Specific Gravity/ Density	Chemical Stability	Incompatibilities with Other Materials	Hazardous Decomposition Products
Sodium Benzoate	negligible	>300C	Soluble in water	1.44	Stable under normal temps and pressures	Strong oxidizing agents	CO, CO2, NaO
Fructose		103-105C	Soluble in water		Stable under normal temps and pressures	Strong oxidizing agents	CO, CO2
Sucrose		160-186C	1gm/0.5ml water	1.59	Stable under normal temps and pressures	Oxidizers, suluric acid, and nitric acid	CO, CO2
Citric Acid		153C	60g/100ml at 20C	1.665	Stable under normal temps and pressures	Metal nitrates (explosive), alkali carbonates and bicarbonates, potassium tartrate. Will corrode copper, zinc, aluminum and their alloys	CO, CO2